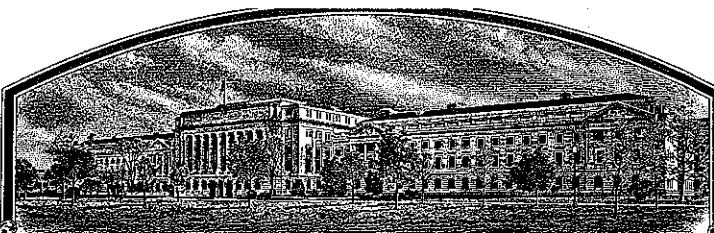


No.

200400269



# THE UNITED STATES OF AMERICA

**TO ALL TO WHOM THESE PRESENTS SHALL COME:**

**U.S. Government, as represented by the Secretary of Agriculture**

**Whereas, THERE HAS BEEN PRESENTED TO THE**

**Secretary of Agriculture**

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

PEA, FIELD

'Stirling'

*In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twenty-fifth day of August, in the year two thousand and five.*

Attest:

  
Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

  
Secretary of Agriculture



U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE  
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

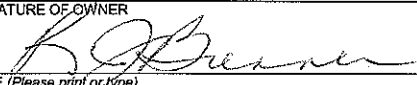
Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER  US Government as represented by the Secretary of Agriculture		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME  PS610152		3. VARIETY NAME  Stirling	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)  USDA-ARS Grain Legume Genetics and Physiology Research Unit 303 Johnson Hall, Washington State University Pullman, WA 99164-6434		5. TELEPHONE (include area code)  (509) 335-9522		<b>FOR OFFICIAL USE ONLY</b> <b>PVPO NUMBER</b> <b>200400269</b> <b>FILING DATE</b> <b>July 2, 2004</b>	
		6. FAX (include area code)  (509) 335-7692			
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.)  US Government		8. IF INCORPORATED, GIVE STATE OF INCORPORATION  na		9. DATE OF INCORPORATION	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers)  Kevin E. McPhee (Technical Representative of ARS), Research Geneticist, USDA-ARS, 303 Johnson Hall, Washington State University, Pullman, WA 99164-6434.  Richard J. Brenner, Deputy Assistant Administrator, Office of Technology Transfer, 5601 Sunnyside Avenue, Room 4-1159, Beltsville, Maryland 20705-5131				<b>FILING AND EXAMINATION FEES:</b> <b>\$ 3652.00</b> <b>DATE 7/2/2004</b> <b>CERTIFICATION FEE:</b> <b>\$ 432.00</b> <b>DATE 6/27/2005</b>	
11. TELEPHONE (Include area code)  (509) 335-9522		12. FAX (Include area code)  (509) 335-7692		13. E-MAIL  kmcphoe@wsu.edu	
14. CROP KIND (Common Name)  Pea		16. FAMILY NAME (Botanical)  Leguminosae		18. DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL)  <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.	
15. GENUS AND SPECIES NAME OF CROP  Pisum sativum (L.)		17. IS THE VARIETY A FIRST GENERATION HYBRID?  <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)				20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act)  <input type="checkbox"/> YES (If "yes", answer items 21 and 22 below) <input checked="" type="checkbox"/> NO (If "no", go to item 23)	
a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$3,652), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)				21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES?  <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED	
				22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?  <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS.  <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)	
23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?  <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO  IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)				24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)?  <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)	

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER  		SIGNATURE OF OWNER	
NAME (Please print or type)  Richard J. Brenner		NAME (Please print or type)	
CAPACITY OR TITLE  Deputy Assistant Administrator	DATE  6/28/04	CAPACITY OR TITLE	DATE

(See reverse for instructions and information collection burden statement)

**GENERAL:** To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$3,652 (\$432 filing fee and \$3,220 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

**Plant Variety Protection Office**

Telephone: (301) 504-5518

FAX: (301) 504-5291

Homepage: <http://www.ams.usda.gov/science/pvpo/pvpindex.htm>

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that name has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, 10301 Baltimore Avenue, Suite 401 NAL Building, Beltsville, MD 20705. Telephone: (301) 504-5682 <http://www.ams.usda.gov/lsg/seed.htm>.

**ITEM**

- 19a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) evidence of uniformity and stability; and (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
- (1) identify these varieties and state all differences objectively;
  - (2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
  - (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
20. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
23. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
24. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

**22. CONTINUED FROM FRONT** (Please provide a statement as to the limitation and sequence of generations that may be certified.)

**23. CONTINUED FROM FRONT** (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

The date of first sale was March 31, 2004 from the Washington State Crop Improvement Association to the University of Idaho Foundation Seed for the purpose of seed production.

**24. CONTINUED FROM FRONT** (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

**NOTES:** It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

### Exhibit A – Origin and Breeding History of ‘Stirling’ Green Dry Pea

Stirling, selection number PS610152, originated as an F<sub>5</sub> selection from progeny of the cross X93P022, ‘Alaska 81’/3/PS810088/2/Alaska 81/‘Radley’, made by Fred J. Muehlbauer in 1992. Alaska 81 (Crop Science Reg. no. 13, PI 508092) originated as an F<sub>2</sub> selection from the fourth backcross of ‘Campbell’s Scotch’ with WIS 7105 and has resistance to pea seed borne mosaic virus and excellent seed quality. PS810088 is a green dry pea breeding line with resistance to powdery mildew caused by *Erysiphe polygoni* DC. PS810088 was derived from the cross (XH84F172), Alaska 81/MX1974. Radley is a green cotyledon dry pea line with the *af* gene that converts normal leaflets to tendrils and the *le* gene that confers semi-dwarf plant stature.

The cross (X93P022) that was used to develop Stirling was made in the USDA-ARS greenhouse located on the Washington State University (WSU) campus during the fall of 1992. The F<sub>1</sub> seeds (6) were planted in the same greenhouse on January 20, 1993 as entry number P193-22. Harvested seed (F<sub>2</sub>) from these plants were planted in the PU9314 field nursery at the WSU Spillman Research Farm as plots 395 and 396. F<sub>3</sub> seed from all plants in these plots were harvested in bulk and planted in the PU9414 field nursery as plots 160 and 162. Plots 160 and 162 were harvested together in bulk and 25 seeds selected for resistance to seed bleach were planted in the USDA-ARS greenhouse on January 10, 1995. Seed harvested from one of these plants was planted as an F<sub>4</sub> progeny row in plot 657 of the PUL9510 field nursery. Seed from one single plant in this row was harvested and planted as an F<sub>5</sub> progeny row in plot 152 of the PUL9610 field nursery. F<sub>6</sub> seed from this progeny row was harvested in bulk, assigned the designation PS610152 and entered into field trials from 1997 until the present. Based on trial results, PS610152 was recommended for release and named Stirling.

Specific selection criteria by generation are as follows:

Generation	Visual quality	Plant habit	Plant height	Lodging	Fusarium wilt Resistance	Powdery mildew	PEMV	Cooking Quality	Yield
F <sub>4</sub>	X	X							
F <sub>5</sub>	X	X	X						
F <sub>6</sub>	X		X	X					
F <sub>7</sub>	X		X	X					X
F <sub>8</sub>	X		X	X	X	X			X
F <sub>9</sub>	X		X	X	X	X	X	X	X
F <sub>10</sub>	X		X	X	X	X	X	X	X
F <sub>11</sub>	X		X	X	X	X	X	X	X
F <sub>12</sub>	X		X	X	X	X	X	X	X

Visual quality = dark green cotyledon color and smooth round seed shape

Plant habit = semi-dwarf vine type and semi-leafless leaf morphology

PEMV = pea enation mosaic virus

Cooking quality = cooking time, water uptake, conductivity of soak water, retention of testa and color

During yield testing between 1999 and 2002 Stirling was observed to be uniform and stable for plant type and seed characters. No variants were observed. However, during increase of breeder seed and foundation seed some off-types were identified and estimated to be less than 0.5% of the plant population. These off-types included, 1) plants with long, spindly vines and afilea leaf morphology – approximately 0.1%, 2) plants with long spindly vines and normal leaflet morphology – approximately 0.1%.

## Exhibit B – Statement of Distinctness

Stirling is most similar to Cruiser; however, Stirling has resistance to powdery mildew. This distinction is based on qualitative (presence/absence) scores assigned to these cultivars under field conditions, therefore, statistical analyses are not applicable.

Stirling is most similar to Cruiser; however, Stirling has slightly larger seed (21.4 vs. 19.4 gm/100 seeds, respectively) and comparisons within five environments showed this difference to be significant in three environments based on a t-test.

Stirling is most similar to Cruiser; however, based on a t-test Stirling bloomed significantly earlier than Cruiser in four years of direct comparison by an average of 4.7 days.

Stirling is most similar to Cruiser; however, Stirling matures approximately 1.1 days later (97.0 vs. 65.9 days, respectively) and this difference was significant in four years of direct comparisons as determined by a t-test.

Stirling is most similar to Cruiser; however, Stirling is significantly shorter than Cruiser (58.7 vs. 72.7 cm, respectively). Statistical differences based on t-tests over four years of direct comparison showed Stirling to be significantly shorter than Cruiser by an average of 4 cm.

### Seed Size

Location	Planting Date	Harvest Date	Comparison Date	No. Plants	Sample Size	Stirling	Cruiser	t-value	p-value
						g/100 seed	g/100 seed		
Pullman, WA	4/14/1998	8/6/1998	8/6/1998	na	100 seed	21.7 +/- 0.1	18.0 +/- 0.4	6.8	<0.025
Pullman, WA	4/26/2000	8/4/2000	8/4/2000	na	100 seed	20.4 +/- 0.2	16.7 +/- 0.2	9.1	<0.01
Genesee, ID	4/10/2000	7/28/2000	7/28/2000	na	100 seed	21.5 +/- 0.1	19.5 +/- 0.1	74.3	<0.001
Pullman, WA	5/7/2001	8/17/2001	8/17/2001	na	100 seed	22.1 +/- 0.2	22.4 +/- 0.1	-0.8	ns
Genesee, ID	4/25/2001	8/1/2001	8/1/2001	na	100 seed	21.1 +/- 0.1	20.2 +/- 0.2	2.3	ns
Mean						21.4	19.4		

### Days to First Flower

Location	Planting Date	Harvest Date	Comparison Date	No. Plants	Sample Size	Stirling	Cruiser	t-value	p-value
						days	days		
Pullman, WA	4/14/1998	8/6/1998	8/6/1998	664	664	59.3 +/- 0.3	67 +/- 0.0	-17.5	<0.005
Pullman, WA	4/26/2000	8/4/2000	8/4/2000	664	664	50.3 +/- 0.3	56 +/- 0.0	-12.9	<0.005
Pullman, WA	5/7/2001	8/17/2001	8/17/2001	664	664	49.7 +/- 0.7	53 +/- 0.0	-5.4	<0.025
Pullman, WA	04/26/02	7/30/2002	7/30/2002	664	664	56 +/- 0.6	58 +/- 0.0	-3.5	<0.05
Mean						53.8	58.5		

### Days to Maturity

Location	Planting Date	Harvest Date	Comparison Date	No. Plants	Sample Size	Stirling	Cruiser	t-value	p-value
						days	days		
Pullman, WA	4/14/1998	8/6/1998	8/6/1998	664	664	104 +/- 0.0	101.7 +/- 0.7	3.8	<0.05
Pullman, WA	4/26/2000	8/4/2000	8/4/2000	664	664	102 +/- 1.0	102 +/- 1.0	0	ns
Pullman, WA	5/7/2001	8/17/2001	8/17/2001	664	664	92.3 +/- 0.7	91.7 +/- 0.7	0.8	ns
Pullman, WA	04/26/02	7/30/2002	7/30/2002	664	664	89.7 +/- 0.7	88.3 +/- 0.7	1.5	ns
Mean						97.0	95.9		

### Plant Height

Location	Planting Date	Harvest Date	Comparison Date	No. Plants	Sample Size	Stirling	Cruiser	t-value	p-value
						days cm	days cm		
Pullman, WA	4/14/1998	8/6/1998	7/1/1998	664	3	68.3 +/- 2.0	80.0 +/- 2.0	-7.7	<0.01
Pullman, WA	4/26/2000	8/4/2000	7/20/2000	664	3	55.7 +/- 2.3	67.0 +/- 4.0	-5.9	<0.025
Pullman, WA	5/7/2001	8/17/2001	8/2/2001	664	3	61.3 +/- 3.0	80.7 +/- 2.4	-11.0	<0.005
Pullman, WA	04/26/02	7/30/2002	7/18/2002	664	3	49.3 +/- 0.7	63.0 +/- 1.5	-12.1	<0.005
Mean						58.7	72.7		

### Seed Yield

Location	Planting Date	Harvest Date	Comparison Date	No. Plants	Sample Size	Stirling	Cruiser	t-value	p-value
						g/plot	g/plot		
Pullman, WA	4/14/1998	8/6/1998	8/6/1998	664	664	2264.7 +/- 192.1	1851.0 +/- 118.2	30.9	<0.001
Pullman, WA	4/26/2000	8/4/2000	8/4/2000	664	664	2180.0 +/- 191.0	1672.0 +/- 11.0	47	<0.001
Genesee, ID	4/10/2000	7/28/2000	7/28/2000	664	664	1679.3 +/- 260.4	2171.3 +/- 45.7	-37	<0.001
Fairfield, WA	4/12/2000	7/31/2000	7/31/2000	664	664	1045.3 +/- 255.8	1351.0 +/- 174.5	19.4	<0.005
WallaWalla, WA	4/18/2000	7/25/2000	7/25/2000	664	664	2263.7 +/- 92.8	914.0 +/- 23.1	164.9	<0.001
Pullman, WA	5/7/2001	8/17/2001	8/17/2001	664	664	3180.3 +/- 53.0	2806.3 +/- 93.2	40.7	<0.001
Genesee, ID	4/25/2001	8/1/2001	8/1/2001	664	664	2490.0 +/- 199.1	2330.0 +/- 98.8	12.2	<0.005
Fairfield, WA	5/11/2001	8/28/2001	8/28/2001	664	664	3216.3 +/- 557.6	3434.7 +/- 453.3	0.9	<0.01
WallaWalla, WA	4/26/2001	7/31/2001	7/31/2001	664	664	1605.7 +/- 86.2	1461.0 +/- 41.6	16.8	<0.005
Pullman, WA	04/26/02	7/30/2002	7/30/2002	664	664	2234.3 +/- 32.3	1941.0 +/- 46.9	43.4	<0.001
Genesee, ID	4/22/2002	7/30/2002	7/30/2002	664	664	2216.3 +/- 40.6	2215.7 +/- 94.3	0.01	ns
Fairfield, WA	4/29/2002	8/20/2002	8/20/2002	664	664	1583.7 +/- 62.4	1315.7 +/- 34.7	35.8	<0.001
WallaWalla, WA	4/25/2002	7/25/2002	7/25/2002	664	664	2124.7 +/- 82.8	2073.7 +/- 126.7	4.6	<0.025
Mean						2160.3	1964.4		

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 2.0 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY  
PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MD 20705

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY  
Pea (*Pisum sativum* L.)

NAME OF APPLICANT(S) Kevin E. McPhee	TEMPORARY OR EXPERIMENTAL DESIGNATION PS610152	VARIETY NAME Stirling
ADDRESS (Street and No. or RD No., City, State, Zip Code and Country) USDA-ARS-GLGP 303 Johnson Hall, WSU Pullman, WA 99164-6434		FOR OFFICIAL USE ONLY PVPO NUMBER <b>200400269</b>

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g.,    or   ) when the number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: \_\_\_\_\_ Please answer all questions for your variety; lack of response may delay progress of your application.

## 1. TYPE:

1 = Garden 2 = Field 3 = Edible-podded 4 = Other (Specify) \_\_\_\_\_

## 2. MATURITY:

Node Number of First Bloom:    No. of Days Processing     Heat Units

No. of Days Earlier Than  } 1 = Alaska 2 = Thomas Laxton WR 3 = Little Marvel  
Days Same As  } 4 = Wando 5 = Alderman WR 6 = Australian Winter  
  No. of Days Later Than  } 7 = Other (Specify) Lifter; 8 = Cruiser

## 3. PLANT HEIGHT:

cm High

cm Shorter Than  Name of Check Cultivar Cruiser

Same As  Same as Check Cultivar \_\_\_\_\_

cm Taller Than  Name of Check Cultivar \_\_\_\_\_

## 4. VINE:

Habit: 1 = Determinate 2 = Indeterminate  3 = Stockiness 1 = Slim (Alaska)  
2 = Medium (Thomas Laxton WR)  
3 = Heavy (Alderman)

Branching: 1 = None (Alaska) 2 = 1-2 Branches (Little Marvel) 3 = More than 2 Branches (Dwarf Gray Sugar)

Internodes: 1 = Straight 2 = Zig Zag   Number of Nodes

## 5. LEAFLETS:

Color: 1 = Light Green (Alaska WR) 2 = Medium Green (Thomas Laxton WR) 3 = Dark Green (Alderman)  
 4 = Other (Specify) \_\_\_\_\_ 5 = Blue Green 6 = Yellow Green 0 = Not Applicable

Wax: 1 = None 2 = Light 3 = Medium  1 = Not Marbled 2 = Marbled (Alaska)  
 4 = Heavy 0 = Not Applicable 0 = Not Applicable

Number of Leaflet Pairs: 1 = Not Paired 2 = One 3 = Two 4 = Three or More 0 = Not Applicable

Leaflet Type: 1 = Leafless 2 = Semi 3 = Normal

## 6. STIPULES:

1 = Lacking 2 = Present 1 = Not Clasping 2 = Clasping

1 = Not Marbled 2 = Marbled  Size (Compared with Leaflets): 1 = Smaller 2 = Same 3 = Larger 0 = Not Applicable

Color (Compared with Leaflets): 1 = Lighter 2 = Same 3 = Darker 0 = Not Applicable

Color: 1 = Light Green 2 = Medium Green 3 = Dark Green 4 = Blue Green 5 = Yellow Green 0 = Not Applicable  
 Color Chart Value: 137B Select the Color Chart Used to Determine the Values:  
☒ Royal Horticulture Society Colour Chart  
☐ Munsell Color Chart  
☐ Other \_\_\_\_\_

Stipule Size: 1 = Small 2 = Medium 3 = Large

Please Provide Comparative Varieties (Check Varieties) and Stipule Color

	Variety (1)	Variety (2)	Variety (3)
Variety Name:	Franklin	Bluebird	Toledo
Stipule Size:	2	2	2
Color Chart Value:	139A	137A	N138B

## 7. FLOWER COLOR:

Venation  Standard  Wing  Keel

1 = White  
 2 = Greenish  
 3 = Lavender  
 4 = Purple  
 5 = Red  
 6 = Other (Specify) \_\_\_\_\_

## 8. PODS:

Shape: 1 = Straight 2 = Slightly Curved 3 = Curved

End: 1 = Pointed (Alderman) 2 = Blunt (Alaska)

Color: 1 = Light Green (Alaska WR) 2 = Medium Green 3 = Dark Green (Alderman)  
 4 = Other (Specify) \_\_\_\_\_ 5 = Blue 6 = Purple 7 = Yellow

Surface: 1 = Smooth 2 = Rough  Surface: 1 = Shiny 2 = Dull

Borne: 1 = Single 2 = Double 3 = Single and Double 4 = Single, Double & Triple 5 = Double & Triple  
 6 = Triple 7 = Other (Specify) \_\_\_\_\_ 8 = Quad, Single, Double, Triple 9 = Quad

cm Length   mm Width (Between Sutures)   No. Seeds Per Pod

## 9. SEEDS: (95-100 Tenderometer)

Color: 1 = Light Green 2 = Green 3 = Dark Green 4 = Other (Specify) \_\_\_\_\_  
 5 = Yellow 6 = Brown 7 = Yellow Green

1 2 3 4 5 6 7 8 Average  
 Seive: %

Shape: 1 = Flattened 2 = Angular 3 = Oval 4 = Rounded



**9. SEEDS:** (95-100 Tenderometer) (continued)

<input type="text" value="1"/>	Surface:	1 = Smooth	2 = Dimpled	<input type="text" value="1"/>	Surface	1 = Shiny	2 = Dull
		3 = Wrinkled					
<input type="text" value="1"/>	Color Pattern:	1 = Monocolor	2 = Mottled	3 = Striped	4 = Dotted		
<input type="text" value="2"/>	Primary Color	1 = Creamy White	2 = Cream & Green	3 = Light Green	4 = Medium Green		
<input type="text" value="4"/>	Secondary Color:	5 = Dark Green	6 = Blue Green	7 = Yellow	8 = Brown		
		9 = Red	10 = Gray	11 = Black	12 = Salmon		
		13 = Purple	14 = Tan	15 = White	16 = Pink		
		17 = Yellow Green					
<input type="text" value="1"/>	Hilum Floor Color:	1 = White	2 = Tan	3 = Black			
<input type="text" value="1"/>	Cotyledon Color	1 = Green	2 = Yellow	3 = Orange	4 = Cream		
<input type="text" value="2"/>	<input type="text" value="1"/>	Grams per 100 Seeds					

**10. DISEASE:** (0 = Not Tested, 1 = Susceptible, 2 = Resistant, 3 = Moderately Resistant, 4 = Moderately Susceptible, 5 = Tolerant)

<input type="text" value="2"/>	Fusarium Wilt – Race 1	<input type="text" value="1"/>	Fusarium Wilt (Near Wilt) – Race 2
<input type="text" value="0"/>	Ascochyta Blight	<input type="text" value="0"/>	Common Mosaic
<input type="text" value="0"/>	Bacterial Blight	<input type="text" value="1"/>	Pea Enation Mosaic Virus
<input type="text" value="2"/>	Downy Mildew	<input type="text" value="1"/>	Seedborne Mosaic Virus
<input type="text" value="2"/>	Powdery Mildew	<input type="text" value="0"/>	Yellow Bean Mosaic Virus
<input type="text" value=""/>	Other (Specify) _____	<input type="text" value="0"/>	Leaf Roll Virus
<input type="text" value=""/>	Other (Specify) _____	<input type="text" value=""/>	Other (Specify) _____

**11. INSECT:** (0 = Not Tested, 1 = Susceptible, 2 = Resistant, 3 = Moderately Resistant, 4 = Moderately Susceptible, 5 = Tolerant)

<input type="text" value="0"/>	Aphids	<input type="text" value=""/>	Other (Specify) _____
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**12. Additional information on any item above, or general comments that may aid in identification:**

UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Research Service  
Washington, D.C. 20250

and

AGRICULTURAL RESEARCH CENTER  
Washington State University  
Pullman, Washington 99164

and

IDAHO AGRICULTURAL EXPERIMENT STATION  
University of Idaho  
Moscow, Idaho 83844

and

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION  
North Dakota State University  
Fargo, ND 58105

#### NOTICE OF RELEASE OF 'STIRLING' DRY PEA

The Agricultural Research Service of the United States Department of Agriculture, the Washington Agricultural Research Center, the Idaho Agricultural Experiment Station, and the North Dakota Agricultural Experiment Station announce the release and naming of a green cotyledon spring pea (*Pisum sativum* L.), 'Stirling'. Stirling was developed by the U.S. Department of Agriculture, Grain Legume Genetics and Physiology Research Unit at Pullman, Washington, in cooperation with the College of Agriculture, Agricultural Research Center of Washington State University. Stirling, selection PS610152, originated as an F<sub>4</sub> selection from the cross Alaska 81/3/PS810088/2/Alaska 81/Radley made by F.J. Muehlbauer in 1993.

Stirling was yield tested in eastern Washington, northern Idaho, Montana and North Dakota for a total of thirty-two site-years. It outyielded 'Columbian', 'Alaska 81' and/or 'Joel' in seventeen of twenty yield tests within the Pacific Northwest (Table 1). Stirling outyielded 'Columbian', the current industry standard, by an average of 18% over four years (2263 vs. 1920 kg/ha) in the Palouse region of eastern Washington and northern Idaho, the most likely region for production of this cultivar. Stirling outyielded 'Lifter', a recent release, by 25% in trials outside the Pacific Northwest (2001 vs. 1612 kg/ha) (Table 2). In addition to its improved yield potential, it has excellent green seed color which is retained under conditions conducive to seed bleaching.

Stirling flowers at the 14<sup>th</sup> node, reaches 50% flowering in 56 days after planting and matures in 104 days, approximately 4 days later than Columbian and 4 days earlier than Lifter. It has a semi-dwarf plant habit and an average height of 21 inches (51 cm). It has semi-leafless leaf morphology and maintains upright growth through maturity. Weight of 100 seeds for Stirling is twenty percent greater than Columbian (21.5 vs. 17.8 g) and is comparable to other cultivars currently being grown. Stirling is resistant to Fusarium wilt race 1 (caused by *Fusarium oxysporum* Schlecht. emend. Synd. and Hans. f. sp. *pisi*.) and powdery mildew (caused by *Erysiphe polygoni* DC).

Release date for publicity purposes shall be effective on the date of final signature of the release notice. Breeder seed will be maintained by the Washington State Crop Improvement Association. Foundation seed will be available from the Washington State Crop Improvement Association, Washington State University, Pullman, Washington, 99164. Genetic material of this release will be deposited in the National Plant Germplasm System where it will be available for research purposes, including development and commercialization of new varieties/cultivars. Plant variety protection will not be pursued for this variety.

It is requested that appropriate recognition be made if this germplasm contributes to the development of a new breeding line or cultivar.

\_\_\_\_\_  
Director, Agricultural Research Center  
Washington State University

\_\_\_\_\_  
Date

\_\_\_\_\_  
Director, Idaho Agricultural Experiment Station  
University of Idaho

\_\_\_\_\_  
Date

\_\_\_\_\_  
Director, North Dakota Agricultural Experiment Station  
North Dakota State University

\_\_\_\_\_  
Date

\_\_\_\_\_  
Administrator, Agricultural Research Service  
U.S. Department of Agriculture

\_\_\_\_\_  
Date

Table 1. Yield comparison between Stirling, a smooth green pea, and four check varieties grown at seven sites over five years for a total of twenty site-years in the Pacific Northwest.

Location	Year	Control Varieties				STIRLING
		Columbian	Joel	Lifter	Franklin	
		kg/ha	kg/ha	kg/ha	kg/ha	kg/ha
Pullman, WA	1998	1844	2508			2265
Pullman, WA	1999	2533	2423	2750	2260	2874
Genesee, ID	1999	1042	1450	1422	1651	1185
Fairfield, WA	1999	2032	2344	2470	2352	2569
Pullman, WA	2000	1891	2196	2125	1803	2180
Genesee, ID	2000	1664	1948	1875	2122	1679
Fairfield, WA	2000	1403	1410	1554	761	1045
Walla Walla, WA	2000	838	1047	2380	2060	2264
Nez Perce, ID	2000	1243	1440	1774	1726	1687
Moscow, ID	2000	2437	3228	3097	3908	3858
Pullman, WA	2001	3057	2662	3171	2556	3181
Genesee, ID	2001	2029	1967	2293	1982	2459
Fairfield, WA	2001	2814	3207	2675	2396	3160
Walla Walla, WA	2001	1471	1655	1377	1254	1693
Nez Perce, ID	2001	2185	1955	1092	1153	2030
Moscow, ID	2001	2679	2930	2665	2537	3027
Pullman, WA	2002	2045	2050	2037	1998	2277
Genesee, ID	2002	2044	2121	2195	1892	2109
Fairfield, WA	2002	1693	1587	1568	1194	1540
Walla Walla, WA	2002	1456	1875	1951	1848	2172
<b>Average</b>		<b>1920</b>	<b>2100</b>	<b>2130</b>	<b>1971</b>	<b>2263</b>

Table 2. Summary of seed yield for Stirling at twelve sites outside the Pacific Northwest from 2000 through 2002.

Location	Year	Control Varieties		STIRLING
		Lifter	Franklin	
		kg/ha	kg/ha	kg/ha
Kalispell, MT	2000	1448	1403	1725
Moccasin, MT	2000	1878	1466	1761
Huntley, MT	2000	1679	1376	1933
Cheyenne Co., NE	2000	1236	1056	1292
Box Butte Co., NE	2000	2045	1202	1899
Carrington, ND	2001		2459	2492
Wall, SD	2001	1179	1128	1768
Moccasin, MT	2001	1696	2066	2169
Huntley, MT	2001	1625	1458	1653
Sidney, NE (Dryland)	2001	742	472	652
Minot, ND	2002	2181		2956
Carrington, ND	2002	2025		3717
<b>Average</b>		<b>1612</b>	<b>1409</b>	<b>2001</b>

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

**EXHIBIT E**  
**STATEMENT OF THE BASIS OF OWNERSHIP**

1. NAME OF APPLICANT(S)  US Government as repesred by the Secretary of Agriculture	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER  PS610152	3. VARIETY NAME  Stirling
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country)  USDA-ARS Grain Legume Genetics and Physiology Research Unit 303 Johnson Hall, Washington State University Pullman, WA 99164-6434	5. TELEPHONE (Include area code)  (509) 335-9522	6. FAX (Include area code)  (509) 335-7692
	7. PVPO NUMBER  <b>200400269</b>	

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain.

☒ YES☐ NO

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country.

☐ YES☐ NO

n/a

10. Is the applicant the original owner?

☒ YES☐ NOIf no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☐ YES☐ NO

If no, give name of country

n/a

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☐ YES☐ NO

If no, give name of country

n/a

11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

Stirling was bred by K.E. McPhee and F.J. Muehlbauer, both employees of USDA-ARS. Their rights have been assigned to the US Department of Agriculture as represented by the Secretary of Agriculture.

**PLEASE NOTE:**

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.